AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 9. PHILADELPHIA, MARCH, 1888. NO. 3

Edited by JOHN BARTLETT.

COMPOSITION.

EVERY picture, in order to present itself agreeably to the eye and the understanding, should consist of a principal group—conveying the aim of the work, or as it were telling its story; and this principal group should always be surrounded and supported by groups or objects of minor importance; if possible ranking second, third, fourth and so on, for if we get these secondary features equally balanced in importance and position, we at once find them warring with one another and distracting the attention from our main point.

A picture must be built up—professional photographers know it well—when they take a photograph of a person including the whole figure, against a perfectly plain background, however excellent a work it may be as far as it goes, it never pretends to claim the title of a picture. And hence the introduction of the painted backgrounds, representing various interior and exterior scenes, supported and completed by built-up stairs, balustrades, rustic fences, rocks, etc. As these accessories are prepared by artists, whose training in their art enables them to arrange harmonious groupings and supports for what is to be brought in as the principal feature or subject of the work, the professional photographer, if he have good taste and knowledge, is helped a vast way along in the matter of making his pictures. But with the general mass of amateurs, who can have no such assistance, and, if they could, would prefer not to avail themselves of it, as it would prevent the exercise of their taste and ingenuity, and rob their work of originality, there is no plan so good as to devote some attention to the study of art, and by reading, and observation of the works of skilled painters, to gain sufficient knowledge of a few of the leading principles to enable them either to build up agreeably impressive harmonies, or at once perceive and seize upon them when nature presents them to us, as she often does, without our premeditated interference.

Nearly all the art work done by amateurs, naturally comes under the head of the picturesque, as photography rarely attempts to deal with what constitutes *high art*, as the term is applied to grand historical subjects, and to dealing with what painters call expression—that is a portrayal of the higher inward passions as expressed in the human countenance. But in the picturesque there is just as much opportunity for the display of genius for admirable groupings and fine effects of light and dark as there is in the grand historical, as is fully exemplified in the work of the painters of the Dutch school.

There is no art more suitable for the photographer to study than that of the painters who lived and worked in Holland during the sixteenth and seventeenth centuries. The subjects they dealt with were most varied, but yet of a character which confined them to the passing scenes and surroundings of every-day life, just such as we wish at the present time to focus our cameras upon. And here we come to the all-important point. These scenes consisted nearly altogether of the commonplace, and many of those attempted by these eminent Dutch painters came under the censure of critics as vulgar, and yet see how, by their genius for harmonious arrangements, groupings, and for beautiful effects of chiaro oscuro, light and dark, alone, not to say anything of their glorious coloring, which would be out of place here, they attained the most exalted and lasting place in art, the fame of many of them even growing to the present day. In the pictures by these men, or the engravings or photographs from them, which answer our purpose just as well for reference — whether they be the more extended groupings of their festivals or the simplest bit of still life which may be called a picture, we see a placing of objects and flow of lines that impresses the eye at once in an agreeable manner. One eminent art writer has said boldly that no representation of any scene or incident whatever can make an impression upon the spectator without a proper and harmonious grouping. Take, for instance, a landscape as presented to us upon a Chinese plate. Here we have a sky with clouds, distant mountains, trees, a river or lake, a bridge and a temple or pagoda, and numerous figures; see what a full assemblage of the materials of a fine picture, and who, with a speck of taste in his soul, would pretend to call it a *picture?* It is literally nothing more than the words which comprise any fine descriptive lines of poetry scattered down at random.

Such work may satisfy those of primitive understanding, who imagine that all an artist has to do is simply to copy faithfully the various objects which he sees before him, regardless of the manner in which they may be disposed relatively to each other. But this is not art, and although you may say that art is not understood by the majority who look at photographs, yet if it is not understood, it is felt, and those pictures which have added to good composition, well disposed masses of light and dark, producing what is called *effect*, will always attract and impress.

As an example of a fine piece of composition, wherein a great number of objects are brought together so as to form a harmonious whole, I have made an outline drawing from one of David Tenier's pictures. It is called "The Old Doctor," and is a good example of a story told in an apparently artless manner, and yet a picture full of art. We see at once that the Doctor has pulled a tooth for the man who is holding his hand on his jaw. The doctor forms the principal feature of the picture and the man and table the second; and all the other objects which are appropriate surroundings, though apparently scattered about in the most natural way, have been purposely grouped with the greatest skill. It may perhaps be said by some that the work is crowded. But try hiding out any of the minor surrounding groups and you will find that you then have too much in the rest for the blank space you have made, and it will not do to go on removing, or you will rob the work of a great deal that makes it interesting; for it must be noted that this subject is not one that requires simplicity to make it impressive or repose to give it sentiment. Most of Teniers' works may be studied with advantage. His "Alchemist," "Drunken Philosopher," "Temptation of St. Anthony," "Smoker," and "Jealous Wife" are excellent examples.

In order to show that these important art qualities, as displayed in the work of an eminent painter who lived more than two hundred years ago, are not out of reach of the camera and the present hour, there is given as the picture of this number a reproduction of an admirable example of composition, the work of Mr. John Bartlett, who, having cultivated his natural good taste by a careful study of art principles as set down in books and exemplified in good pictures, has done more in his numerous genre and still-life groupings to show the capabilities of photography in this direction than any one whose works have come under my observation.

XANTHUS SMITH.

THE MECHANICAL THEORY OF THE INVISIBLE IMAGE.

THE nature of the invisible image on the exposed and yet undeveloped plate has been an object of much speculation, but from the very nature of the case we can do little more than theorize about it.

To say that the "actinic" force existing in the rays of light has caused the change in the condition of the plate, is only to give the object of our study a new name without adding very much to our stock of information about it. It is, however, possible to conceive of an analogy existing between the invisible action of light in producing an effect upon the sensitive plate and the visible action of force in motion as known and studied in the realm of mechanics.

The vibratory hypothesis of the action of the forces of nature is now very gen-

erally admitted to explain visible phenomena in a more satisfactory manner than any other which has been advanced.

The molecules of all substances are assumed to be in a state of incessant vibration, and the direction and amplitude of these molecular vibrations act by their variations and reactions upon each other to produce the various phenomena of light, heat, electricity, chemical action as well as the more apparent effects of mechanical force.

The mechanical theory of heat, the vibratory theory of sound, and the undulatory theory of light are now generally received, and the "new chemistry" also assumes a vibratory theory of chemical action, so that it is only reasonable to expect that vibrations in the form of light acting upon vibrations existing in a chemical compound, should produce reactions without requiring the assistance of any so-called "actinic force."

Take for example some well-known instances of the "interference" of vibrations. A tuning fork, when struck and held over the mouth of an empty beaker will cause the air within the beaker to vibrate and reinforce the sound. If, however, the vibrating prongs of the fork be inclined so that the sound waves from one prong enter the breaker one-half wave length ahead of the waves produced by the other prong, the interference of the two opposing sets of waves will produce silence. If the opposition of the two sets of vibrations is not complete, the beats in the sound will indicate audibly the interference which is going on between the sound waves.

Take another purely mechanical illustration, that of the interference of vibrating pendulums. If we stretch a cord across the room, allowing it to hang in a rather taut catenary curve and suspend from it two pendulums about three feet apart, we can show the interaction of their vibrations in a very intelligible manner.

Start one vibrating and hold the other still, and the first will perform its vibrations in equal times and at a uniform rate; it represents, let us suppose, the vibrations of the molecules on our sensitive plate. Now draw back the other pendulum and allow it to swing. Its vibrations at once act upon those of the first pendulum and by interfering bring it to a state of rest after a few vibrations.

If we now suppose the second pendulum to represent the light vibrations striking the plate we have in the action of the two pendulums the counterpart of a photographic exposure.

Now when the first one comes to rest by the action of the second we can stop the second pendulum, or photographically speaking, put on the cap, and the image is secured. If we do not choose the right moment the vibrations will be resumed, and, by analogy, the image spoiled.

Of course, I do not mean to convey the idea that the molecules in the exposed plate are brought to rest, but only that their vibrations have been modified by exposing them to the action of the light waves for a definite time, and that this interference of the vibrations is perfectly capable of producing the result without calling in the action of any occult "actinic force."

When we consider the red rays of the spectrum represent about five hundred million million vibrations every second, it is not difficult to conceive that the trembling salts of silver in the plate may be permanently affected by their action even for the hundredth part of a second; while the violet rays, pouring in at the rate of seven hundred million million vibrations in a second, act still more energetically.

While these illustrations and instances are only intended to be considered as rough suggestions and not as close analogies, yet if we are going to accept the vibratory theory of the constitution of matter, we must be prepared to consider these indefinitely small and indefinitely rapid vibrations as very real things, actually producing all the varied phenomena of the material universe about us.

HENRY HARRISON SUPLEE.

PHOTOGRAPHING INTERIORS BY MEANS OF BLITZ-PULVER.

THERE is perhaps no branch of our profession which is more beset with difficulties than the successful photography of interiors.

The danger from halation from open windows, the lack of detail in dark corners, the unevenness of the illumination—to say nothing of the expense of time demanded even with our rapid plates—make the task anything but easy. We have had considerable experience in interior photography, and, as far as circumstances would permit, have achieved some very good results—even in the days of the slow wet plate, when one could draw the slide, uncap and go comfortably to sleep for an hour or two before the light had impressed the image upon the collodion film.

When the magnesium flash powder first made its appearance, we confess we looked upon it as a passing novelty, which might please for awhile the amateur and then give way to something newer. But the good results obtained, showing its value as a photographic agent in illumination, induced us to try it in a case we considered impossible to obtain properly by the ordinary means of illumination.

The room was so situated that only a feeble light entered at one end, directly opposite which we would have been obliged to plant our camera, powerful enough to cause halation, too weak to be of any service. Heavy hangings and curtains, massive panelings and carvings, and decorations upon the walls—in fact, everything opposed to making a good photograph. Here, we thought, is a chance to try the vaunted virtue of this Blitz-pulver. We accordingly secured some of the powder, made use of a liberal dose, employing a five-inch Ross' Portable Symmetrical lens, stopped down to *f*–32, to secure good definitions. We ignited the charge with a long taper.

The flash was instantaneous, could scarcely have been over one-fourth of a second, yet most brilliant, resembling lightning more than anything else.

I could distinctly see, even during that short interval, every part of the room how thoroughly it was lit up, and thought, If there is power enough in this light, I surely have secured a good picture this time.

I was anxious to know the result, and accordingly at once developed the plate; using the ordinary strength of developer. I saw by the manner the image came up that I would have an excellent picture.

When finished, the negative was remarkable, with rich detail even in the dark shadows. The decorations and patterns upon the hangings came out distinct and beautiful. In fact, it was a negative any one might be proud of.

I subsequently made a number of other interiors with the Blitz-pulver, with the same and even better results.

I believe it will be largely employed in securing pictures of this kind. It not only

saves a great deal of trouble and time, but—what is, above all, most desirable—allows the members of the house to occupy places in the picture, giving a more home-like appearance to the scene.

From the absence of life in interior pictures, there has always been conveyed an impression of dreariness and desertion.

The rapidity of the flash removes all constraint from the participants, and gives a naturalness to the scene which is delightful.

I have made a number of successful exposures, representing clubs and associations, at evening banquets.

The process is fascinating to all who take a share in it. I thought these few remarks from a practical photographer might be of interest to your readers.

GEORGE ENNIS.

PHOTOGRAPHS IN NATURAL COLORS.

Abstract of Lecture read at the Franklin Institute, Feb. 28th.

THERE are two distinct methods of making color-photographs in which the distribution of color is regulated by photographic action of the light itself. In one of these methods the colors are produced directly by the action of light upon a peculiar silver compound; in the other no colors are produced, but the action of light upon color-sensitive plates is made to regulate the distribution and combination of colors which constitute the final picture. Both of these methods have been made to produce pictures in which the blues, greens, yellows, and reds of one object were represented in a general way by blues, greens, yellows, and reds.

The first recorded observation on the photographing of colors by the first method were made by Dr. Seebeck, of Jena, in 1810—twenty-nine years before the discovery of the Daguerreotype process. (These experiments were "on white chloride of silver spread upon paper and still wet," upon which a spectrum was thrown.) Sir John Herschel in 1839, Edmond Becquerel in 1848, Neipee de St. Victor in 1851, Poitevin in 1861, and St. Florent in 1873, made some advances upon this method, but the results obtained have never had any practical value. The process is so insensitive as to require hours of exposure in order to secure camera pictures of objects illuminated by direct sunlight, and the colors obtained, which are neither correct nor sufficiently brilliant, cannot be fixed. The researches of M. Carey Lea, of this city, appear to have thrown some further light upon this subject, but have not yet helped to the production of any better results. Most people who are interested in the subject expect the problem to be solved by a method of this character; a few, including myself, do not.

Permanent and far more brilliant pictures have been made by the second method I have mentioned, which was originally suggested by Henry Collen, of England, in 1865. His plan was to obtain different negatives, one sensitive to the blue rays only, one sensitive to the red only, and one sensitive to the yellow rays only. He says: "It will not be difficult to imagine the negatives being received on the surface of a material quite transparent and extremely thin, and that being so obtained, each pair of superimposed negatives are used to obtain the color of the third—that three positives will be obtained, each representing a considerable portion of the form of the

object, but only one primary of the decomposed color of it. Now, if these three positives be received on the same kind of material as that used for the negatives, and be then laid the one on the other, with true coincidence as to the form, and all laid upon a white surface, it will not be difficult to imagine that the effect would be not only the representation of the form of the object, but that of its color also, in all its compounds." Ducos du Hauron, of Paris, appears to have been the first to attempt to realize a practical process of this character. Instead of trying to produce plates sensitive only to simple colors, he proposed to employ plates sensitive to all colors, and to filter the light through suitable colored glasses, which amounts to the same thing.

Now this method of Collen and Hauron is evidently based on Sir David Brewster's theory of the nature of light, which is, that all the other colors and shades of color in the spectrum result from the combination of three in different proportions. It has been clearly established that this theory is false, and that the color of no part of the spectrum can be truly reproduced by the optical combinations of other parts. On the other hand, it is true that the eye is readily deceived by such combinations, which may, therefore, be regarded as more or less successful counterfeits of the true colors. * * * It is really possible to successfully counterfeit all the colors of the spectrum by means of three transparent solutions of seemingly pure color, separate and mixed in different proportions. A photographic method that would accomplish this selection and combination of type colors automatically, and in such a scientific manner as would invariably secure the representation of each distinct spectrum color by a definite and suitable color mixture, would, I believe, be the nearest approach to accurate photography in colors that we are likely ever to realize. This method of Hauron's, although it had to be abandoned as utterly unreliable, was found to reproduce many pigment colors very well indeed. This result was due to the fact that all bright pigments reflect the light of two or more parts of the spectrum, and in some cases, by mere coincidence, in such proportion as will secure for them approximately correct representation by a process that is incapable of producing a fair counterfeit of the spectrum. Inasmuch, however, as we do sometimes have to deal with nearly pure colors, and the composition of the mixed colors is also infinitely varied, it is evident that a heliochromic process, in order to be successful, must be capable of counterfeiting the spectrum itself. Such a process I have devised, and will now undertake to describe for the first time. As I have said, I reject the theory of three primary colors, recognizing the fact that the color of each part of the spectrum is perfectly distinct from that of every other part; I do not attempt the impossible feat of actually reproducing each ray of simple color, but I undertake to make each ray of simple color select, in a definite manner and quite automatically, such a combination of type colors as will successfully counterfeit it to the eye.

My process, to be brief, consists of making three negatives on color sensitive plates, which are exposed simultaneously in a triple camera, behind light filters, that are carefully adjusted to transmit to each plate just the kinds and amount of light that will cause the resulting negative to make a colored picture which, when combined with the other two colored pictures, produced in the same manner, will counterfeit the colors of the spectrum, or the colors and light and shade of any object. In order to accomplish this, each spectrum color that is not coun-

terfeited by any one reproduction color must of course be made to act upon two sensitive plates in such a manner as will secure a definite and suitable combination of two reproduction colors in the final result. * * All this can be accomplished in a most satisfactory manner by the employment of special compound color-screens, which are adjusted by experiment upon the spectrum itself in the manner originally suggested by me in a communication to the Franklin Institute in June, 1886. It is true, the amount of labor involved in the adjustment of these color-screens is something enormous, but when it is done it is done for all time. Evidently a process may be perfectly correct in principle and yet depend for its success upon conditions so difficult to attain that it will fail in practice. I believe that this process, although essentially difficult, may, nevertheless, be so perfected that it will not only counterfeit all the colors of nature, but be practical and reliable in the hands of specialists who are properly instructed and equipped to operate it. If so, it will have very great value, even if applied only in the manner I shall show to-night, and for a single purpose, which will suggest itself. "The proof of the pudding is the eating." I have not yet proved the value of this process. Although I commenced work on it eleven years ago, I have made only half a dozen full regular sets of negatives, and most of those were destroyed by fire at 715 Arch street, two years ago. My recent experiments have been devoted to perfecting certain details only. The single example that I shall show you is my first and only attempt at a landscape, made more than six years ago, with comparativelv crude apparatus and imperfect adjustment of color-screens. It is, however, a very remarkable picture, with colors scarcely less brilliant than they would appear in the ground glass of the camera, and substantially correct to the eye in every shade and detail. I hope some time to be able to show hundreds of such pictures, all better than this one. This illustration suggests one of the easiest and most profitable of the many possible applications of the method, viz., the illustration of popular lectures on travel like those of Stoddard and Wilson. I feel sure the time is not far distant when that much at least will be successfully accomplished.

FRED E. IVES.

THE ORIGIN AND TECHNOLOGY OF PHOTOGRAPHIC CHEMICALS.

Eleventh Paper.—Oxalic Acid.

OXALIC acid was discovered by Scheele in 1776, and was one of the earliest practical inventions of the chemistry of organic substances. It is found in some fruits, in the juice of wood sorrel and common sorrel, in the varieties of rhubarb or pie plant, generally combined with potash or lime. Some lichens growing on limestone rocks contain half their weight of oxalate of lime, and occasionally urine is perceptibly charged with it. Curiously enough a mineral called "Humboldtite," a peroxalate of iron, is found.

When one part of sugar is mixed with four of nitric acid and two of water, nitric oxide and carbonic acid are evolved; then distilling the residual until the excess of nitric acid is driven off and pouring the remaining solution into a shallow vessel, crystals of oxalic acid are deposited. As sugar is an expensive substance to use, many researches were made to produce the acid from other organic substances, and now the principal source of manufacture is the despised "saw dust" which gives it

of good quality and in large quantity and very much cheaper than by the sugar process.

Heating woody fibre to a moderate temperature with caustic potash the products are ulmic acid and hydrogen. At a higher temperature, oxalic acid replaces the ulmic as a product. The principle of this manufacture is to heat woody fibre with alkali to a sufficient degree to produce oxalic acid. Soda alkali alone is not found to answer the purpose.

The saw dust acquires a dark brown color from the action of the alkalies, and is rendered soluble in water. The mixture is heated to about 400° in shallow cast iron pans for some hours, care being taken to avoid charring. The heat is then cautiously raised and the result is a mixture containing a large quantity of the mixed oxalates of potash and soda. These oxalates are converted into oxalate of lime, which is a comparatively insoluble salt, filtered, washed, and the lime is precipitated from the oxalate of lime by the cautious addition of sulphuric acid, forming insoluble sulphate of lime and oxalic acid in the solution. This solution is evaporated to crystallization, and by careful recrystallization the beautiful white crystals of oxalic acid we find in the shops are produced. It is said two pounds of saw dust yield one pound of oxalic acid!

One manufactory in England produces weekly nine or ten tons, used mostly in calico printing, dyeing and bleaching, and to some extent in our beautiful photographic art for a variety of purposes.

The ordinary crystals of oxalic acid are transparent four-sided prisms, intensely sour, soluble in about 12 parts of water at 60°, at 212° they fuse in their own water of crystallization. Unlike most vegetable acids, oxalic acid is a powerful poison, a dose of it destroying life in a few minutes, and, therefore, great caution must be observed in handling it or its salts, and waste solutions should be most carefully disposed of to avoid danger. Chalk and magnesium are antidotes for it. It reddens litmus paper even in a solution of one part in 200,000 of water, when boiled with solutions of gold it throws down metallic gold.

The chemical formula of crystals of oxalic acid is $C_2O_3HO+2HO$, or carbon 2, oxygen 3, and water of crystallization; anhydrous oxalic acid does not exist. It combines with bases to form salts, and with the alkalies of soda and potash gives acid and neutral salts, differing very widely in their properties. With potash it forms three combinations called neutral oxalate, binoxalate, and quadoxalate, containing varying quantities each of alkali. The neutral oxalate, the salt used in photography, is very soluble in water and requires great care to produce handsome crystals. It is soluble in three parts of cold water, the saturated solution containing twenty-five per cent. of it. It is insoluble in alcohol. The binoxalate has a strong acid reaction with litmus paper, is sparingly soluble in water, and is not to be used in photographic work.

To be suitable for photographic work, the neutral oxalate should be readily soluble and free from an excess of alkali or carbonates of the alkalies, as these would give precipitates, especially with solution of proto-sulphate of iron, and cause muddiness in the developer and retard or entirely destroy development. Care must be observed in neutral oxalate development to have a slight excess of the solution of neutral oxalate; an excess of the iron salt throws down an insoluble oxalate of iron, and to avoid this the precaution of always adding the solution of proto-sulphate of iron to the neutral oxalate is invariably demanded in formulas with bromide paper.

The chemical action in neutral oxalate development is practically the conversion of the sub bromide of silver, in an exposed film into metallic silver at the expense of the proto salt of iron. The neutral oxalate of iron is very "weak base," or, in plain language, has little stability in the presence of oxidizing substances, being readily converted into the oxalate of the *per* salt of iron, taking oxygen where it can get it, and it is supposed that the neutral oxalate developer acts by some oxidizing process in abstracting oxygen from the silver in the film, and depositing metallic silver. A very pretty experiment in depositing metallic silver from nitrate of silver can be made in a test tube by putting in a few drops of concentrated nitrate of silver solution, then some tartaric acid or neutral tartrate of potash and a few drops of ammonia, and gradually warming the mixture over the flame. If care be observed, a most beautiful mirror of metallic silver is formed on the test tube, rivalling in beauty that of the mirrors we use, made with quicksilver amalgam. Undoubtedly some reaction of similar character takes place in neutral oxalate development, although the silver has not that bright metallic lustre of the mirror, owing to a difference in the physical state of the particles of silver due to varying accompanying manipulation temperature and reagents, although possibly such a mirror-like result might be obtained, but a very curious negative or print would result. Binoxalate of soda is, curiously enough, the most difficult soluble known salt of soda, and is, precluded from use in photography so far as present methods go.

FRANK H. ROSENGARTEN.

OUR ILLUSTRATION.

GENRÉ photography, or the representation in a picturesque manner of domestic scenes and incidents of everyday life, strange to say, has not as many votaries as the mania for instantaneous work. A transient attitude caught by the quick perception of the sensitive film, gives, from the very nature of the conditions, the idea of constraint, and therefore the picture lacks one of the essential elements of art repose.

We feel pleasure in looking at the paintings of the Dutch and Flemish schools, because the subjects they have chosen are from the actual world about them; despite the fact that their figures have neither the grace of the Venus of Praxiteles nor the personal beauty of the grand works of Raphael or Da Vinci. They are true to their time, and therefore true to art. It is noticeable how much the classic still dominates modern art.

After a visit to an annual exhibition of pictures one is almost tempted to say, What a boon it would be if modern art might forget the past—yes the past, with all its wealth of tradition, its glorious productions, its Phidias and its Raphael, its Greek and its Renaissance. With the past before us it seems we cannot see the beauty and truth of the present. We look at the world about us only through the medium built up of the rules and codes of tradition.

We sigh because we do not produce the Fornarina of Raphael, the Mona Lisa of Da Vinci and yet our very neighbor, perhaps our baker's wife, might furnish us with a subject original and adequate for the demands of modern art if we could forget the doctrines of artistic proportions which prescribe a definite structure for a lily.

We ought to sigh for not appreciating the wealth within our grasp. We are not classical or medieval, but modern.

Above all, the photographer who strives after artistic rendering of a subject should remember that he emphatically belongs to the present. When he attempts the statuesque or affects grandiose style he makes himself simply ridiculous. Outside of landscapes, in which he is wholly dependent upon what nature gives him, his only hope is in the faithful rendering of the scenes in the drama of everyday life, a field in which he will have scope enough for expression of artistic feeling.

The frontispiece to our magazine is a simple genré picture, yet possessed of considerable artistic merit. The poses are easy and natural, and the action in harmony with the surroundings, and though it might be accounted commonplace by the idealistic photographer, still possesses one of the chief requsites of art, the property of giving pleasure to the beholder. A simple theme, simply rendered, is infinitely preferable to an attempt at high art which results only in mawkish sentimentalism.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held Wednesday evening, March 7th, 1888, with the President, Mr. Frederic Graff, in the chair.

The Committee on Membership reported the election of the following active members:

William W. Noble,	Richard A. M. Deeley,
William Struthers, Jr.,	Alexander Hemsley,
Thomas Hockley,	John H. Dingee,
Richard B. Irwin,	James N. Whelen.

The Committee on Lantern Exhibition reported that an exhibition of lantern slides from the work of members was held at Association Hall on the evening of January 11th. 164 slides were shown, contributed by 52 members. The committee considered the collection as the best yet shown by the society, giving evidence of great improvement both artistically and technically, and much interest was shown in it by the general public.

The Committee on Lantern Slide Interchange reported that it had received and exhibited the slides sent by the Society of Amateur Photographers of New York and the Boston Camera Club, and had now on hand to be shown, those from the Brooklyn Camera Club and the 200 sent by the Camera Club of London, a selection from which would be shown at the conversational meeting March 21st.

In response to a call made by Mr. George Bullock of Cincinnati, representatives from the various Societies in the Interchange held a conference at the room of this Society on Monday, February 20th, 1888.

The conference adopted regulations for the organization of the American Lantern Slides Interchange, a copy of which is appended as follows.

REPORT OF CONFERENCE TO ADOPT REGULATIONS FOR ORGANIZATION OF AMERICAN LANTERN SLIDE INTERCHANGE.

The undersigned delegates in conference, assembled at the rooms of the Photographic Society of Philadelphia, on Monday, February 20, 1888, have agreed to form an association of photographic societies for the purpose of making and exchanging

lantern slides among its members and foreign photographic societies, and propose for adoption the following resolutions:

NAME.—The name of the association shall be called The American Lantern Slide Interchange.

OBJECT.—The object of the organization shall be to promote interest in photography through the medium of lantern slides, by arranging for regular interchanges of the work of the different clubs between each other, and exchanges jointly with the clubs of England.

MEMBERSHIP.—The members of this association shall consist of the following nine photographic associations, to wit: Photographic Society of Philadelphia, Philadelphia Amateur Photographic Club, The Society of Amateur Photographers of New York, The Brooklyn Camera Club, The Boston Camera Club, The Pittsburgh Amateur Photographers' Society, The Cincinnati Camera Club, The St. Louis Association of Amateur Photographers, and the Chicago Lantern Slide Club.

The membership may be increased at any time by a vote of the majority of the members of the Board of Directors. Any applicant for membership shall submit with its application a set of not less than fifty slides made by its own members. Any member of the Interchange desiring to withdraw from membership shall notify the manager on or before the 20th of February of each year.

BOARD OF DIRECTORS.—Each constituent society shall, at its first regular meeting in March, 1888, and at its first regular meeting in January of each year thereafter, elect one of its members as a delegate. These delegates, when elected, shall constitute a Board of Directors.

On the 1st of April in the year 1888, and on the 1st of March in every year thereafter, the Board of Directors shall organize by electing, either at a meeting called for that purpose or by correspondence, as shall be deemed best, a manager and two assistants, who shall together constitute the Executive Committee of said Board of Directors.

The Executive Committee of the Board of Directors shall determine the number of slides to be contributed to the Interchange each year; they shall formulate a system of rules governing the progress of the slides accepted for the Interchange, and shall decide how the slides to be sent abroad are to be chosen; also, how the foreign slides received in exchange shall be divided.

The Committee shall issue a call on or before the 20th of May of each year for contributions of slides from each society, which slides must be shipped to the manager on or before the 15th of October following.

It shall be the duty of the Executive Committee to determine what portion of the slides contributed by each society shall be sent on the circuit. If more than fifty per cent. of those submitted by any one society be thought unworthy of exhibition, the whole number submitted shall be returned to the society sending them. If this occurs upon two successive years the membership of that society shall cease.

The Committee may designate some topic or text to be illustrated by the various members of the Interchange for that year, and may specify the number of slides, and the amount of text to be furnished for the purpose of such illustration. In case of the clubs being called upon to illustrate some subject connected with descriptive text for reading, not more than seventy-five per cent. of the negative and slide work need necessarily be that of the members of the clubs respectively.

SIZES, MATS AND LABELS.—Slides for submission to the Interchange shall not vary more than one-sixteenth of an inch from the standard size of three and one-fourth inches in height by four inches in length, the picture being perpendicular to the four-inch side of the plate.

The diagonal of the mat opening shall not exceed four and one-eighth inches, and the subject shall be centred on the plate.

Slides shall be marked as follows: The subject-name shall be placed on the right-hand end of the picture as you look at the positive in its proper position, and a thumb label containing the invoice number on the lower left-hand corner of the same.

SLIDES AND NEGATIVES.—The negatives from which slides are made must be the work of the member submitting the same, and when the slide is not also the member's work, it must be so stated.

DUES.—Each society shall, on its adoption of these regulations, pay to the manager the sum of ten dollars. Whenever the funds in the hands of the manager shall be reduced to less than twenty-five dollars, each society shall be assessed the sum of ten dollars. Each society shall be reimbursed, from the funds in the hands of the manager, for its expenses incurred in the shipment of slides.

AMENDMENTS.—Suggestions for amendments to these regulations shall be made in writing before February 1st of each year, and sent to the manager.

He shall submit them to the members of the newly-elected Board of Directors for their individual consideration by the 15th of March following, and a vote taken thereon by correspondence (if no meeting is held).

If a majority of the Board of Directors have not voted in favor by the 15th of April following, the amendment shall be declared lost.

This Constitution shall be considered adopted and in force when it has been ratified by not less than five of the societies herein mentioned.

Mr. George Bullock, of the Cincinnati Camera Club, is hereby designated to carry out, on behalf of the societies represented, the interchange of slides now in progress, and is also authorized to complete the organization of this Interchange.

Adopted at Philadelphia this twentieth day of February, A. D. 1888.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA,
By W. A. Dripps.

PHILADELPHIA AMATEUR PHOTOGRAPHIC CLUB,
By F. A. Cunningham.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF N. Y.,
By Richard H. Lawrence.

THE BROOKLYN CAMERA CLUB,
By Richard H. Lawrence.

THE BOSTON CAMERA CLUB,
By William Garrison Reed.

THE PITTSBURGH AMATEUR PHOTOGRAPHERS' SOCIETY,
By George S. Orth.

THE CINCINNATI CAMERA CLUB,
By T. H. Kelley.

THE ST. LOUIS ASSOCIATION OF AMATEUR PHOTOGRAPHERS,
By George Bullock, proxy.

THE CHICAGO LANTERN SLIDE CLUB,
By George Bullock, proxy.

The Committee suggested that a delegate be elected at this meeting to represent the Society in the Board of Directors.

The report was accepted and the Committee discharged with thanks.

The proposed regulations for the Lantern Slide Interchange were then taken up for consideration. Mr. Coates made the objection that no limit was provided to the assessments which might be made on the various Societies.

Mr. Carbutt stated that according to his recollection the size agreed upon for the diagonal of the mat opening was 3⅝ inches, instead of 4⅛ inches as given in the report. This was corroborated by several members who had been present at the conference.

On motion of Dr. Howe the regulations were approved and adopted by the society, *with the proviso* that they be so modified that the various societies shall not be assessed over $20 during any one year beginning March 1st, and that the size of diagonal allowable for mat openings be corrected to 3⅝ inches.

On motion of Mr. Browne, Mr. W. H. Rau was appointed to represent the society as one of the Board of Directors of the Interchange.

Mr. Joseph H. Burroughs exhibited two of the new Welsbach Incandescent Gas Burners, which were described at the January meeting. The mantles were those intended to produce a white light, which is best adapted for photographic use. Mr. Burroughs also showed some negatives and lantern slides made by means of this light. The negatives were copies of engravings, made with an exposure of two minutes. Two burners were placed, one at each side of the camera, as close to the engraving as possible without allowing the light to shine directly in the lens. Reflectors were used to concentrate the light on the picture. The stop used was about F-30. For the lantern slides made from these negatives an exposure of 5 minutes was given, with F-16 stops on Carbutt's A-12 lantern plates. Hydrokinone developer was used. The lights showed attracted great interest from the members, and many questions were asked about them. It was stated that the mantles had stood a test of over 1,000 hours. The lights shown were not of the most approved form made by the company. Those now being made, and which will soon be placed on the market, are very much more powerful. They will be made in various sizes suitable for different purposes.

Mr. Bell showed a piece of ruby glass prepared by himself from a formula which would prove valuable to photographers so situated that the regular article could not be obtained. 150 grains of Heinrich's gelatine is dissolved in 6 ounces water, and 3 grains chloride ammonium added. To this is added a solution of 30 grains nitrate of silver in ½ ounce water. A clean piece of glass is warmed and coated with the gelatine solution at a temperature of 100° F. One ounce of the emulsion is sufficient for a 10x12 plate. After coating place the glass on a level marble slab or glass plate to set and dry. When dry expose to sunlight and the color will change to a beautiful orange ruby exactly suitable for dark room illumination.

Mr. Wood referred to a recent statement by President Walker, of the Society of Amateur Photographers of New York, to the effect that the shape of the diaphragm opening, whether round or square, made no difference in the resulting picture. He showed some figure pictures in which the background was out of focus. The usual round spots of light in the background were square in the pictures shown, this being the shape of the diaphragm opening in the Hoover shutter used in making the exposure.

Mr. Wood also showed two instantaneous pictures made, one during a rain

storm and one when snow was falling. Both were quite successful, but neither the falling raindrops or snowflakes appeared in the prints shown.

Adjourned.

ROBERT S. REDFIELD, *Secretary.*

GAS-LIGHTING BY INCANDESCENCE.

[It may be of interest to our readers to know something further about the Welsbach Incandescent Gas Light exhibited at the last meeting of the Phila. Photographic Society.

At the time enquiries were made as to the nature of the material employed in the construction of the hood, but no information was given of the chemical constituents.

We are indebted for a full description of the lamp and nature of hood to Mr. H. H. Suplee, editor of *Mechanics*, who has kindly placed at our disposal the report of the American Society of Mechanical Engineers, printed as a special supplement to June *Mechanics*, which was the first publication in this country making known this method of illumination.

We extract those portions of the report which directly refer to the Welsbach lamp.]

ABOUT two years since interest was excited by reports from Vienna, that an Austrian physicist, Professor Auer v. Welsbach, had succeeded in producing an exceedingly thin hood or mantle of zirconium oxide, capable of receiving a high degree of incandescence when submitted to the action of heat, without becoming disintegrated, and of sufficient strength to resist the ordinary shocks of service. The English patents bearing on this particular invention, so far as they are made public, are dated December 12, 1885, May 13, 1886, and July 29 of the same year.

In the first specification, it is set forth by Professor Welsbach that this invention relates to the manufacture of an illuminant appliance in the form of a hood, rendered incandescent by gas or other burners. The proportions of the substances used for impregnating the hood, as already described, are given as follows:

60 per cent. zirconia or oxide of zirconium.
20 " " lanthanum.
20 " " yttrium.

or, as an alternative:

50 per cent. zirconia.
50 " oxide of lanthanum.

The claim in this specification runs as follows: "The manufacture substantially as herein described, of an illuminant appliance for gas or other burners, consisting of a cap or hood made of fabric impregnated with the substances mentioned and treated as set forth." In the second patent, dated March 13, 1886, "the use of oxide thorinum alone, or in admixture with oxides of zirconium, lanthanum, yttrium, neodymium (one of the two metals of which didymium is composed), erbium, magnesium, or aluminium" is claimed. It is asserted that oxide of thorinum produces a good light, and a rigid hood: that a mixture of thorinum oxide and lanthanum oxide in equal proportions produces a yellow light; that thorinum oxide and neodymium oxide produce an orange light, and that thorinum oxide and erbium oxide produce a greenish light. The specification of July 29, 1886, relates to the treatment of the zirconium ore.

The zirconium is reduced to about the size of peas, heated to a white heat under free admission of air, pulverized, levigated, and is then digested for several days with concentrated pure hydrochloric acid for the purpose of removing all traces of iron. The original brownish gray powder is by this means converted into a perfectly

white powder, and many of the impurities originally contained in the zirconium crystals are dissolved. The fine zirconium powder is then washed and dried, and is mixed with double the quantity of calcined carbonate of soda, and after being ground fine, it is subjected to a white heat for about three hours in a platinum crucible. The cakes of soda thus obtained are placed in cold clean water, when a fine white powder will be precipitated, while numerous bodies that are not useful pass into the mother liquor. The white powder is washed in water, dried, and treated with sulphuric acid under trituration until a sample heated on platinum clearly shows an excess of sulphuric acid. The decomposition of the white powder by sulphuric acid takes place under considerable heating, and care must be taken that the acid is very gradually added (the powder remaining perfectly dry), as otherwise a scattering of the mass will ensue. The powder is then heated to a boiling point of the sulphuric acid, whereby the greater part of the excess of acid will be driven off. After cooling, the powder is mixed with a large quantity of cold water under stirring, whereby the zirconium will be dissolved as sulphate, together with other bodies. The undissolved precipitate is unconverted zirconium and silicic acid. This is separated by filtration and washed. The solution of zirconium sulphate is precipitated cold by ammonia, and is washed. If this material be now dissolved in nitric acid, so that no considerable excess of acid occurs, a brilliant white powder will after a short time be precipitated, which is a peculiar combination of zirconium, containing this method in an almost chemically pure condition. The impurities, such as iron, alumina, etc., remain in the lye. This re-action is based on the fact that a small quantity of sulphate of ammonia present in a solution of nitrate of zirconium effects the separation of the compound completely when heated, and partially when cold.

The precipitate containing the zirconium is almost insoluble in water, but is soluble in nitric acid when freshly precipitated; when digested with ammonia it is rapidly converted into dense zirconium hydroxide, which is readily separated by washing. This body is then dissolved in concentrated nitric acid, and the solution is evaporated on a water bath, producing clear gum-like crusts consisting of zirconium nitrate. This substance dissolved in water forms a main constituent of the incandescent body. A patent taken May 20, 1886, by J. Mactear should be mentioned in connection with this subject, as it was obtained especially in relation to the system, and the patentee is one of the directors of the Welsbach Light Company. It claims the application and use, for impregnating hoods for purposes of incandescence, of strontia, baryta, and thoria, separately or in combination, and the mixture of such materials with zirconia, the main object being that when the fabric is destroyed by incineration the earthly particles retain the form of the fabric, and have relatively considerable strength, while the zirconium supplies the incandescent element. In other words, it is a process for strengthening the fragile hood.

It is to be regretted that although nearly a year and a half has elapsed since Professor Auer's arrangement excited scientific interest, but little has been done in practice, and the only available results are those obtained from the laboratory. In Vienna—its birthplace—some public offices, shops, and private dwellings, have adopted it, and in England, where the patents were acquired at the close of 1885, by a syndicate now merged in a large company, two or three places of public resort have been lighted by it, but only so recently as to afford no means of judging whether the inventor's claims will be justified by experience. In London, indeed,

the whole of last year appears to have been lost in perfecting details of what was supposed six months before to be an already perfect invention, and for this reason there is no public experience to draw from as to the practibility and permanence of the light. That the inventors and their friends are profoundly convinced of the immense value of the invention is shown by the fact that they have recently launched a two million dollar company for working the process.

The arrangement of the Welsbach lamp may be described in a few words. A hood of fine fabric, such as net, is impregnated with the zirconium solution already referred to, and when dried and shaped symmetrically, is suspended by platinum wires over a Bunsen burner, the whole being preferably inclosed within a glass chimney. When the burner is lighted the combustible portion of the hood is rapidly burnt away, and the water of the solution evaporated, leaving a skeleton of zirconium oxide—a perfect replica of the original fabric. Under the action of the heat this delicate surface is brought up to vivid incandescence, though it does not reach its maximum illuminating power for several hours. If not broken by accident, through flaws in the structure or from other causes, it maintains its maximum brilliancy for a long but apparently variable period, dependent probably upon a variety of external and structural conditions; this period of maximum usefulness is stated to range from 300 to 1000 hours, but the writer gives these figures not on his own authority; it is clear, however, that a time comes, when supposing the delicate oxide skeleton has withstood the ills to which it is peculiarly heir, begins to fail, and through another long period of gradually decreasing efficiency, becomes ultimately useless.

Leaving, however, these points to the inexorable judgment of actual experience, the results obtained in the laboratory are of special interest, and point to the high value of the invention. The following figures may be relied upon as accurate, as they were furnished by Mr. Conrad W. Cooke, the engineer of the syndicate:

Burner.	Pressure of Gas in Hundredths of an inch.	Consumption of Gas in Cubic Feet per Hour.	Illuminating Power in Normal Candles.	Efficiency or Number of Candles per Cubic Foot of Gas consumed per hour.	Remarks.
M 3	90	1.95	14.1	7.23	White.
	100	2.10	17.0	8.1	
	1 5	2.36	20.0	8.47	
M 4	90	2.20	18.6	8.1	White.
	100	2.30	18.8	8.2	
	110	2.50	17.7	7.1	
M 5	90	1.85	11.3	6.1	This burner was adjusted for pressures above 1 in.
	100	2.00	14.0	7.0	
	125	2.25	19.0	8.4	
	175	2.70	22.4	8.3	
P 5	75	2.15	16.8	7.8	White.
	80	2.22	17.5	7.9	
	90	2.40	17.5	7.3	
	100	2.50	17.8	7.12	
	110	2.65	16.5	6.22	
	120	2.80	16.0	5.7	
P 4	75	2.25	16.3	7.2	Yellow.
	80	2.40	17.0	7.1	
	90	2.55	19.5	7.6	
	100	2.75	19.4	7.0	
	110	2.875	19.0	6.6	
2	120	3.00	18.0	6.0	

Corroborating and indeed surpassing them, are the results obtained by the city analyst of Glasgow, the difference in efficiency being probably due either to increased heating energy of gas, or to a more favorable reading of the photometer.

Burner.	Pressure on the Gas in Hundredths of an Inch.	Gas per Hour in Cubic Feet.	Illuminating Power in Standard Candles Corrected.	Candles per Cubic Foot.
A	6	2.05	18.96	9.25
	70	2.20	21.00	9.55
	80	2.42	21.90	9.05
B	60	1.95	19.02	9.75
	70	2.10	20.75	9.88
	80	2.30	21.19	9.21
C	90	1.85	18.40	9.94
	110	2.02	21.60	10.69
	130	2.20	22.60	10.27

When it is remembered that the English Board of Trade requires that a standard Argand burner shall have an efficiency of 3.2 candles per cubic foot of gas per hour, and that from seven to eight candles can be obtained from the Welsbach hood, during its best period, the very large economy resulting will be at once evident.

The Welsbach light complies fully with some, but not by any means with all, of the conditions mentioned above as being necessary for successful domestic lighting. Existing fittings are disturbed only as far as new burners are necessary, and no additional service pipes are required. The light is far better than that given by gas, and is absolutely steady; the color is preferable, though it may be mentioned that normally the Welsbach light is intensely, almost ghastly, white. A remarkable feature of the light is the relative small amount of heat given off. Of cost the writer is not in a position to speak, except that the 2,000,000 dollar company, already mentioned, propose to make a profit of $1.25 for each light sold. The chief weakness of the new system would seem to lie in the excessively delicate character of the hood, which, according to the writer's experience (though he would carefully point out that all must not be taken as conclusive), is gradually disintegrated under small and frequent vibrations such as those caused by passing vehicles in an adjacent street. The remaining conditions, except that relating to duration of efficiency, are certainly established beyond dispute, but it will be readily admitted that the fragility of the vital organ will retard its general adoption until thorough experience shall have proved the danger to be imaginary, or some means have been devised of strengthening the hood.

JAMES DREDGE.

MINNEAPOLIS.

CONVENTION ARRANGEMENTS.

THE committee landed in Minneapolis January 30th, at 8 A. M. By 10 o'clock they succeeded in capturing Mr. Rugg, who towed them to Mr. W. H. Jacoby's office, from whence the four proceeded to Mr. C. M. Palmer's office, the said gentleman being the manager of the Exposition Building, and with whom arrangements were

made to visit it at 2.30 P. M., same day. The interim was consumed in visiting the various halls in the heart of the city, with an eye to business sessions. One hall, suitable in every way, was offered at five dollars for each day, and ten ($10) for night sessions. The offer was left in abeyance for the following reasons: unless the Art and Merchants' Departments should be closed each day till noon, the attendance on its meetings would be too meagre to justify such arrangements; and the committee do not care to take the responsibility of assuming the assent of all concerned to such arrangements.

At the appointed time the Exposition Building was reconnoitred, and the second floor of it and the art gallery fixed upon as the best for our purposes, all of which were subsequently secured.

The delegates returned and parted with Mr. Palmer, with an agreement to meet the Directorate at 10.30 next day. The rest of the afternoon was consumed in visiting the armory, which is badly lighted, leaks, and too small for our purposes. The skating rink is twice as large, but other objections lie against it—besides, the lumber and carpenter bills would eat us like a cancer; so nothing was left but the Exposition Building and awaiting the meeting of the Directorate.

The next morning was used in visiting the hotels to secure reduced rates. Rooms and meals can be had ranging from $1.25 to $3.50 per day. Hotel rates and locations will be subsequently published with railroad rates in the Journals. It is assumed that every live photographer (that means all who attend our conventions) takes at least one of our periodicals, and that all necessary information will reach him without such an enormous use of circulars, envelopes and stamps, all of which will be avoided so far as consistent with good business management.

At 10.30, the Directorate having met, Mr. Carlisle stated what we wanted; whereupon a member made a motion to refer our application to the finance and building committees, with instructions to report that evening at 5.30, which was adopted. Another interim, and we used it to secure a stenographer. She is a real blond, with dark hazel eyes, a finely-formed head, and a first-class stenographer and type-writer, and seems to have fully her share of the nervous energy so much talked about in Minneapolis. The lady is Miss E. U. Everts.

At the time set, the committees met and unanimously consented to our use of the building, but objected to the use of the second floor for the Merchants' Department, fearing the owners of booths, counters, etc., would condemn them; in fact, felt they had no right to let the floor indicated without their consent. But we insisted no other floor would answer as a substitute. Finally the writer, having the fear of the merchant before his eyes, suggested the securing of the consent of the various owners of booths, pyramids, etc., to our own use of the same. This was settled upon. Mr. Palmer gave us a list of the firms, and Mr. Jacoby offered to accompany and introduce us, and use his influence in our behalf.

So, next morning, seated in Mr. Jacoby's two-seated sleigh, behind his pair of spanking greys, we began the grand rounds. We started with trepidation, but it was dispelled by the first gentleman on whom we called. All seemed only too glad to be of service to the Association, and we had the pleasure of meeting a number of the staunchest business men of the city.

Consequently the *contract* was made, securing such parts of the second floor as

needed, the Art hall on the same level, and the dining room for day sessions, in consideration of half the receipts of the day open to the public.

Our lumber and carpenter bills should be almost, if not absolutely, nothing. The same as to dealers—the counters and booths, pyramids and platforms being admirably fitted for their purposes.

In the afternoon, in company with Mr. Peck, the committee went to St. Paul; saw part of the Industrial Parade and, picking up the suave Swem, visited the Ice Palace, the photographers within the reach of limited time, and the zealous Zimmermann, the genial merchant.

The "boys" in both cities are enthusiastic over the Convention and will pull together to make it a success, and the occasion one of pleasure to the "other boys." Arrangements will be made by them to visit Minne-ha-ha and for an excursion to and on Lake Minnetonka, where Geo. Ayers will show the "boys" how to fall overboard, sport like a dolphin, and flop back again without risk of drowning.

They say this mixture of nervous and muscular energy results from the air, which is saturated with champagne and ozone.

Thursday, Feb. 2, went to Exposition Building, took some measurements and observations, while Mr. Jacoby made a set of negatives of the various points and objects in the Merchants' Department. Have secured electrotype of building, and data for use of the Journals.

Minneapolis was wrapped in the chaste embrace of winter; the snow being thirty inches deep in the streets, and the frost, like eider down, clothed the naked branches of shrub and tree; but still, evidences enough remained of the combination of boulevards and shores, islands, lakes and skies; of river, dale and canyon, to make one anticipate the glories awaiting us next summer.

Everybody wears furs. It has been predicted that in a generation or two more the Minnesotans will be born with the fur on. The buffalo and the coon, the beaver and the mink, the otter and the seal, even the jack-rabbit has delivered up his epidermis to the Minneapolitan, and in the streets the hues and tints of their furs shimmer, glint and flit in and out, like the colors in a kaleidoscope.

Carlisle left Indianapolis with a faint feeling that he would like to have a fur coat. At *Minneapolis* it grew into a passion. Every moment rendered useless by the delay of others up to the last day was absorbed to find that coat. It grew to be a serious business; nevertheless the coat must be found, for no brooking a soul passionately intent on an object to be achieved. At last, bless the Creator of furs and other things to meet the absorbing desires, the coat was found that satisfied his æsthetic eye and fitted his broad back. The coat was donned, etc., and he strode forth like a Tartar or Viking King. The armature of fur about his neck seemed to complete the circuit of positive and negative electricity in him and that of the Minnesota atmosphere, and he cavorted up the street with the combined energy of an engine and snow-plow. It is said the modified form of electricity in the nervous fluid is the link which connects the psychical with the animal life. Now the Electric Lights of the North rise to the zenith of Minneapolis, and then darklingly drop their mysterious fruitage to the earth beneath. It was noticed, too, that each individual hair of mustache turned up its microscopic bills like ducks in a shower, to catch this cosmic ozone. All of which makes it incumbent on the "boys" to go up this summer and store up in

their weary bodies some of this surplus energy floating with such negligence and hilarity in the Minneapolis air.

Our work being done, and accompanied by Messrs. Brush, Peck, and the courtly Beale to the train, we departed at 7.30 P. M., Thursday, for Chicago, whence Carlisle turned his face eastward, and the writer home to paddle his canoe with a photographic business at one end and the Secretary's office at the other.

Indianapolis, Feb. 11, 1888. W. H. POTTER.

NOTES.

THE REVIVAL OF THE TASTE FOR PLAIN PAPER PRINTS.

THERE seems to be a reaction in favor of plain paper; at least, matt surface prints are beginning to dispute the monopoly hitherto enjoyed by album photographs.

The effect obtained on bromide and platinum papers may have directed the attention of photographers to the old method, and some of our veterans may have recalled the fine artistic results obtained in the days gone by.

Albumen prints, with their glossy surface, do not generally receive the commendation of artists, but it must be confessed that better results may often be obtained with albumen, when a rather poor quality of negative is used, than with matt surface paper. A great many of the plain prints, by inexperienced amateurs, are characterized by a lack of vigor. The defects in the negative are not as easily masked with plain paper as with albumen. But on the whole we are inclined to favor the revival.

PHOTOGRAPHIC SUBJECTS.

THERE is a show of justice in the complaint of the painter that our modern life affords but a limited choice for the expression of grand ideas in art.

Apart from scenes of a tragic character of a universally absorbing interest, like M. Rollo's great work—"A Strike amongst the Miners," there are probably but few subjects upon which a painter could reasonably hope for fame. The same excuse cannot be pleaded by the photographer, because his province is not high art.

There are incidents from every-day life which afford scope enough or the expression of whatever artistic feeling he may possess, without necessitating recourse to the realms of idealism.

It was only last year that a valuable prize—a massive silver cup—was awarded at the Chicago Convention for the production of the best single picture of the whole collection on exhibition.

The judges were captivated with the subject the photographer had chosen to show his artistic skill. Its high artistic qualities made them unanimous in their decisions. You all know the title of this honored photograph, "*Man, Know Thy Destiny.*" Numerous reproductions of it have been made.

It represents a man masqueraded as an old hermit, with cloak and cowl, a grizzled beard upon his chin, a human skull by his side, an ancient book open beforn him from which he is seeking to find his destiny. Is this a subject to inspire modern art? We are rather inclined to think that a Nineteenth century hermit would be looking for his destiny over his bank book and stock account, in his workshop, amid the rattle and din of machinery, not in a lonely cell of a medieval inactivity.

Our day and generation has no sympathy with such a phase of social life. Why should our art?

Photography, when it undertakes depicting such subjects becomes ridiculous. Even perfection of technical rendering will not atone for the folly.

It is not necessary to confine photographic art to the province of portraiture, although, candidly speaking, we saw pictures at the Exhibition which, strictly speaking, were nothing but portraits, yet truly possessed of artistic merit.

Photography has a broad field for artistic expression in landscape and genré, but when it attempts the ideal, aspires to the realms of the imagination, its intense realism shocks our sense of the eternal fitness of things.

This year at our Minneapolis Exhibition Convention the silver cup must again be contested for. The subject has this time been chosen for the aspirants, a poetic subject, the mythical "*Hiawatha*" of Longfellow's epic.

The artistic feeling of the photogragher will no doubt be gratified with various conceptions of the theme. We shall have diverse poses of the hero, hunting, sailing, fasting, wooing, with appropriate sittings of adjustable backgrounds and shop accessories.

KALEIDOSCOPIC PHOTOGRAPHY.—The almost infinite variety of combinations produced simply by turning the little instrument known as the kaleidoscope very shortly after its discovery, suggested the value of its application to designers in furnishing patterns for art decoration. The difficulty in securing by means of drawings the protean shapes the little pieces of glass, etc., assume, is probably the reason why it is not now generally employed. Messrs. Addison Burk & John G. Cassebaum, of this city, have recently produced, in a very simple way, reproductions of these changing patterns. An ordinary camera, with a portrait lens, was made use of—a lamp placed back of the ground glass of the kaleidoscope giving sufficient illumination to form the image upon the ground glass of the camera; a hood, to shut out extraneous light, being placed over the space between the eye-piece of the instrument and the camera screen. Exposure and development was the same as for an ordinary negative. A color screen and other chromatic plates could be used, if the ordinary brilliant pieces of glass of the kaleidoscope are used; but the experimenters recommend the construction of a special tube, in which the materials used are of such a color as will give a pleasing half-tone image without the use of color sensitive plates. The facility with which these kaleidoscopic images may be secured recommends the process, not only to designers and decorators, but also to all who delight in the study of ornamentation. Messrs Cassebaum & Burk promise further experiments, and hope soon to show us a series of the photographs, which will be also valuable in judging of the probability of the recurrence of any set of impressions.

BY the kindness of Mr. Charles R. Pancoast we have received a catalogue of the Exhibition of the Photographic Society of India, held at Calcutta.

We notice with pleasure the awards of the judges which have been made to the following American exhibitors. Class I. Open to the world.

3. Extra silver medal to Mr. McMichael, of Buffalo, N. Y., U. S. A., for his very fine series of direct large portraits.

4. "As we do not consider the Photographs in Class II. specially deserving of an extra medal, we would recommend that the medal placed at our disposal in that class may be transferred to Class I., and awarded to Mr. G. M. Elton, of Palmyra, N. Y., U. S. A., for his excellent series of studies."

Class I. *a.* Amateurs of the world. The bronze medal to Mr. C. R. Pancoast, Waterbury, Conn., U. S. A., for No. 228, exhibit from the Punjab Calcutta Exhibition, 1883–84. "We would, however, record our high commendation of the whole series."

We can echo the sentiment of the judges, as it has been our privilege to see the entire collection of Mr. Pancoast's beautiful photographs. Our readers too shall be favored shortly with a selection as illustrations to our magazine.

E. & H. T. ANTHONY & Co. are going to issue, about July 1, 1888, an *International Annual of Photography*. This Annual is to fill a place unoccupied by any existing similar publication, and will contain contributions from the best workers in photography in both Europe and America. They have secured the co-operation of one of the ablest photographic workers in Europe to edit the contributions from the transatlantic contributors, and also to look after our interests on the other side. The gentleman that they have been so fortunate as to secure in this part of the enterprise is W. Jerome Harrison, F. G. S., a name familiar from his noted contributions to the literature of our science. On this side of the Atlantic the Annual will be in the hands of Arthur H. Elliott, Ph.D., F. C. S., whose well-known editorial work on the Bulletin is a sufficient guarantee that there shall be a good feast of photographic lore from American contributors. With such a combination of able editors, the success of the enterprise is assured. It will embrace a somewhat different field of interest in photography from any other work; will be issued at a different time, and there is no doubt will commend the attention of every earnest photographic worker, both professional and amateur. Contributions from some of the ablest workers and writers in our art are assured, and there is every reason to believe that the project will be a success.

A PARTNERSHIP has been formed between Mr. Joseph P. Cheyney and the firm hitherto trading under the title of Wilson, Hood & Co. The new corporation is known as the Wilson-Hood-Cheyney Company, limited. Messrs. Wilson, Hood & Co. have for nearly a quarter of a century been known to the profession as men of integrity, and have enjoyed a high reputation in business circles. Mr. Joseph P. Cheyney is also widely known and respected. We trust the pleasant relations with their patrons, hitherto enjoyed by each of the members, may be collectively greatly increased in the new combination. The location of the company is 910 Arch street, Philadelphia.

PHOTOGRAPHING ON METAL.—An exhibition was given in this city last week by a photographer of a part of a new process for producing photographs on metal. It is said that up to the present time no one has been able to do this. The work exhibited

was very pretty and very delicate. The pictures were executed on watch cases, buttons, lockets, breast-pins, and other pieces of metal. The process is a secret one and the negatives are taken instantaneously and by means of a flash light. A number of negatives of guests were taken and developed by a liquid which, the inventors of the process claim, is a vital part of the production of photographs on metal.—*Engineers' and Miners' Journal, New York.*

THE Cleveland *Sun and Voice*, of February 26th, gives a brief sketch of Mr. J. F. Ryder, pointing out his intimate connection with the growth of artistic photography, not only in Ohio but throughout the country. We think everyone who knows Mr. Ryder and has seen his work, will applaud the sentiment of the editor of the *Sun* when he says:

"It is J. F. Ryder who has made this name famous. He can well lay claim to being not only among the foremost, but among the first, artists of the State." We, however, would say "country" instead of "State."

CHICAGO ANNOUNCEMENT.—The Blair Camera Company take pleasure in announcing to photographers of the West that they have engaged Mr. Henry G. Thompson, formerly of the firm of Douglass & Thompson, and late Vice-President of the corporation of N. C. Thayer & Co., as manager of the photographic stock department recently created at their branch store, 208 State street, Chicago, Ill.

THE frontispiece for this month is by the Ives celebrated process (Crosscup & West Eng. Co.) It is a reproduction directly from a photographic negative, printed from a block in an ordinary press. The good qualities of the original are admirably preserved. It may be safely said that no other process of a similar kind can produce such beautiful results.

For the excellent presswork demanded by the Ives process, we are indebted to the skillful and careful printing of Edward Stern & Co., of this city.

The plate upon which the negative was made was a Cramer, 30. A 7-9 Ross rapid symmetric lens, full opening; time, 1 second, 6 P. M., September.

WE have received samples of Mr. Carbutt's plates prepared with his new very rapid emulsion. Exposures were made with Blitz-pulver. The result—much overtimed negatives, which fact speaks very favorably both for the extreme quickness of the plates as well as for the energy of the Blitz-pulver.

THE AMERICAN JOURAL OF PHOTOGRAPHY published by Thos. H. McCollin & Co., and edited by John Bartlett, begins its ninth volume with the January number, and appears in a new dress and new make-up, which very much improves its appearance. Under Mr. Bartlett's able editorship the JOURNAL has grown steadily in usefulness and interest, and the new and original matter provided every month for its readers is one of the chief reasons for the substantial position which it has attained. —*Phila. Public Ledger, February 2d, 1888.*

MARCH BARGAIN LIST.

Accessories:

1—14 in. Eureka Burnisher, good condition, ... 18 00
1—8x10 Perfect Camera Stand, . 8 00
2—8x8 Interior Backgrounds, each 6 00
1—8x10 Hough's Exterior Ground, new, light left, ... 11 50
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British Journal Almanacs for 1878 20
Photo Mosaics for 1883, ... 20
1—8x10 Plain ground 4 50
1—Knickerbocker stand, with 14x17 top 12 00
1—8x10 Osborne's interior background, new, light left . . . 20 00
1—4x8 Osborne's side slip . . . 7 50
Negative boxes, odd sizes, each . 20
1—Adjustable arm Position Chair 12 00
1—Osborne stile, new 4 50
Pearl leads, the best retouching point in the market, each . 15
Interchangeable View Albums, 7x10, for 5x8 views, with removable leaves fastened by cord, each 1 35
Job Lot Fine Cabinet Plush Frames, each 60
8x10 Job Lot Picture frames; write for particulars.

Desiring to reduce our stock, we will sell for a short time.

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5x8 Woodbury Dry Plates . . .	80
4¼x6½ " . . .	65
6½x8½ Triumph " . . .	85
5x7 " " . . .	55
4¼x6½ " " . . .	45
5x8 Neidhardt " . . .	65
4x5 Bridle " . . .	35

Camera Boxes:

1—8 x 10 American Optical Co.'s Royal Camera, double swing and carriage movement, . 30 00
1—5x8 New Model Outfit, and 2 extra holders, ... 10 00
1—4x5 Bijou Camera, and two holders, ... 8 00
1—5 x 8 American Optical Co. Camera, ratchet bed, two double dry plate holders, extension tripod, and Darlot rapid Hemispherical Lens . 35 00
1—4x5 Novalet Camera shoulder, new 10 50
1—11x14 Blair reversible back, extension front view, box and 3 holders, ... 40 00
1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for 30 00
1—6½x8½ camera, with ratchet bed, ground glass and wet holder 3 00
1—4x5 '76 outfit 15 00
1—10x12 Cone View Camera, Double Swing, new 52 80
1—11x14 New Haven Reversible Back Camera, Double Swing, new 44 00
1—14x17 New Haven Acme Portrait Camera, Single Swing, new 46 00
1—4x4 Standard Portrait Camera wet holder, new 14 75
1—4x5 Flammang revolving back Camera, new, ... 25 00
1—4¼x5½ No. 202 A. Scovill Outfit 20 50
1—6½x8½ View Camera and Lens 12 00
1—5x8 Wet Plate Stereo Camera, 3 holders, case and tripod . 25 00
1—6½x8½ American Optical Co., first qual. View Camera . . 23 00
1—4¼x5½ Ex. qual. Portrait Camera 17 50
1—5x8 American Optical Co., Stereo Camera 25 00
1—6½x8½ Standard Portrait Camera, with holder 13 60
1—5x8 Blair View Camera, single swing 17 00

Lenses:

1—8x10 Morrison Peerless Portrait Lens, ... 40 00
1—14x17 Harrison wide angle view 18 00
1—4x4 Tench Portrait Lens. This was made by Dallmeyer's foreman, and is the same combination as his No. 3, A list, $224.00, will sell for 90 00
1—Matched pair German Stereoscopic Lenses, in good order . 15 00
1—5x8 Dallmeyer View Lens . . 15 00
1—Woodward Condensing Lens 10 00
1—4x4 Darlot Globe Lens . . . 25 00
1—4x4 " " " . . . 20 00

1—5x8 Abendroth wide angle view lens 15 00
1—⅓ size L. W. Krantz Portrait Lens 12 50
1—½ size C. C. Harrison portrait lens 8 00
1—¼ size portrait lens 3 00
1—½ size Darlot quick acting Portrait Lens, central stops . 18 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens 40 00
1—Extra 4x4 Chapman Portrait Lens 20 00
1—8x10 E. A. View Lens . . . 5 00
1—Ross View Lens 5 00
1—H. Fitz Double View Lens, revolving stops 8 00
1—8 x 10 Voigtlander Portrait Lens 80 50
1—4x4 Dallmeyer Group Lens . 50 00
1—4x4 Walzl Portrait Lens . . 20 00

HINTS TO AMATEURS—A valuable book of instructions, mailed on receipt of two two-cent stamps.

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